computers & industrial engineering

An International Journal

Volume Contents and Author Index Volume 22, 1992



OXFORD • NEW YORK • SEOUL • TOKYO

computers & industrial engineering

An International Journal

Editor: Hamed K. Eldin

Gary E. Whitehouse and Yasser A. Hosni Associate Editors:

> Industrial Engineering and Management Systems University of Central Florida, P.O. Box 25000

Orlando, FL 32816, U.S.A.

Editorial Advisory Board

William E. Biles Department of Industrial Engineering

University of Louisville Louisville, KY 40292, U.S.A.

F. Max Croft

National Aeronautics and Space Administration (NASA) Marshall Space Flight Center Alabama, U.S.A.

C. Patrick Koelling
Department of Industrial and Systems

Engineering Virginia Polytechnic and State University Blacksburg, VA 24061-0118, U.S.A.

Jay Liebowitz School of Government and Business The George Washington University Washington, DC 20052, U.S.A.

Irvin Otis Chrysler Motors Corporation 18581 Capitol Southfield, MI 48075, U.S.A.

A. Ravindran
Office of the Provost
University of Oklahoma
Norman, OK 73019-0390, U.S.A.

Daniel Teichroew The University of Michigan Ann Arbor, MI 48109-2117, U.S.A.

Thomas L. Ward Department of Industrial Engineering University of Louisville Louisville, KY 40292, U.S.A.

International

Salah Bayoumi College of Engineering Cairo University

Cairo, Egypt

Hans-Jorg Bullinger Fraunhofer-Institut IAO **Bibliothek** Nobelstrasse 12C Postfach 80 04 69 Stuttgart, Germany

M. Sadek Eid Département de Génie Université de Moncton Moncton, N.B. Canada E1A 3E9

Eduardo Oliva-Lopez Instituto Politecnico Nacional Iztacalco DF Mexico

Muramatsu Rintaro

Department of Industrial Engineering Waseda University Tokyo, Japan

N. A. Schofield Director, CAE PA Consulting Group Cambridge Laboratory Melbourn Herts. SG8 6DP. England

Publishing Office

Pergamon Press Ltd, Pergamon House, Bampfylde Street, Exeter EX1 2AH, England [Tel. Exeter (0392) 51558; Fax (0392) 425370].

Subscription and Advertising Offices

North America—Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A. Rest of the World—Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, England [Tel. Oxford (0865) 794141].

Subscription Rates

Annual institutional subscription rate (1993); £387.00 (US\$735.00). Sterling prices are definitive. US dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice.

Back Issues

Back issues of all previously published volumes, in both hard copy and in microform are available direct from Pergamon Press offices.

Second class postage paid at RAHWAY NJ. Postmaster send address corrections to Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

Published 8 issues/annum in 2 volumes (Volume 22 published quarterly in January, April, July and October and Volume 23 as a complete volume of 4 issues published in November).

Copyright © 1992 Pergamon Press Ltd

List of Contents

NUMBER 1

Jin B. Ong, Abu S. M. Masud and Osama K. Eyada	1	SENSES: a knowledge-based sensor selection system
Azim Houshyar	9	Determination of optimal intermediate storage capacity
John S. Usher	19	A computer program for component life estimation using multiply censored system life data
Gary S. Wasserman	37	An application of dynamic linear models for predicting warranty claims
Srinivasakumar S. Madurai and Li Lin	49	Rule-based automatic part feature extraction and recognition from CAD data
T. C. E. Cheng	63	A note on the equivalence of the Wilkerson-Irwin and modified due-date rules for the mean tardiness sequencing problem
Murali Krishnamurthi and Don T. Phillips	67	An expert system framework for machine fault diagnosis
Timothy L. Urban	85	Deterministic inventory models incorporating marketing decisions
Wing S. Chow and Ostap Hawaleshka	95	An efficient algorithm for solving the machine chain- ing problem in cellular manufacturing
		NUMBER 2
Neal S. Widmer and Shimon Y. Nof	101	Design of a knowledge-based performance progress monitor
T. C. E. Cheng	115	Optimal single-machine sequencing and assignment of common due-dates
Pei Chann (Michael) Chang and Han Chau (Garry) Lee	121	A greedy heuristic for bicriterion single machine scheduling problems
Robert T. Plant and Qing Hu	133	The development of a prototype DSS for the diagnosis of casting production defects
Jianxin Tang and Wilfred V. Huang	147	A decomposition method for generation scheduling of hydro systems with delays and unpredictable changes in natural inflows
Mostafa Khattab and F. Choobineh	157	A basis for the design of a multiattribute heuristic for single resource project scheduling

Contents

Ching-Jong Liao	163	Optimal control of jobs for production systems
Gary S. Wasserman and LeRoy A. Franklin	171	Standard bootstrap confidence interval estimates of $C_{\rho k}$
F. Can Çetinkaya and M. Sinan Kayalıgil	177	Unit sized transfer batch scheduling with setup times
Thomas L. Landers, Donald A. Stanley and Walter A. Whitt	185	Design and standardization issues in serial networking
R. J. Mayer and P. C. Benjamin	195	Using the Taguchi paradigm for manufacturing system design using simulation experiments
Ravinder Nanda and Ho-Ki Nam	211	Quantity discounts using a joint lot size model under learning effects—single buyer case
		NUMBER 3
P. A. S. Ralston, K. E. Stoll and T. L. Ward	223	Fuzzy logic control of chip form during turning
Dileep R. Sule and Wayne J. Norris	231	Manpower assignment strategies in serial production lines with limited personnel: evaluation of pull-push rules
Paul M. Griffin and Sherri L. Messimer	245	Object pose determination from range data
Nallan C. Suresh and Shashidhar Kaparthi	257	Flexible automation investments: a synthesis of two multi-objective modeling approaches
Jae-gyun Kim and Dong-wan Tcha	273	Optimal design of a two-level hierarchical network with tree-star configuration
Richard J. Tersine, Samir Barman and John S. Morris	283	A composite EOQ model for situational decomposition
Saifallah Benjaafar	297	Intelligent simulation for flexible manufacturing systems: an integrated approach
Darrell G. Linton and Marcus J. Bendickson	313	Some advancements in Monte Carlo integration methods with applications to proximity fuze detection probabilities
Kevin J. Dooley and John C. Anderson	323	On special causes which only affect a portion of the subgroup
Won Y. Lee, Suraj M. Alexander	337	A diagnostic expert system prototype for CIM

Contents

Richard J. Tersine	353	A dynamic programming method for determining optimum liquidation quantities for slow-moving inventories
		NUMBER 4
Kevin J. Dooley and Farzad Mahmoodi	359	Identification of robust scheduling heuristics: application of Taguchi methods in simulation studies
S. Chakravarthy	369	A finite capacity dynamic priority queueing model
Jorge Haddock and John Mittenthal	387	Simulation optimization using simulated annealing
Omprakash K. Gupta	397	A lot-size model with discrete transportation costs
Rong-Kwei Li and Cheng-Long Hwang	403	A framework for automatic DFA system development
Kyle A. Crawford and Osama K. Eyada	415	A knowledge-based decision support tool to increase the effectiveness of purchased material quality verifications
Saeed N. Mogharabi and A. Ravindran	423	Liquid-waste injection planning via goal program- ming
M. Sinclair and S. Erasmus	435	A microcomputer-based decision support system for the management of lumber mill production
Fariborz Y. Partovi and Jonathan Burton	447	An analytical hierarchy approach to facility layout
D. Ben-Arieh and Isaac Balaila	459	A decision support system for machine selection with load balancing
V. Venugopal and T. T. Narendran	469	A genetic algorithm approach to the machine- component grouping problem with multiple objectives
Stephen Aylor, Luis Rabelo and Sema Alptekin	481	Artificial neural networks for robotics coordinate transformation
T. C. E. Cheng	495	Efficient implementation of Johnson's rule for the $n/2/F/F_{\rm max}$ scheduling problem
Chuen-Sheng Cheng and Norma Faris Hubele	501	Design of a knowledge-based expert system for stat- istical process control